

Department of Energy

Ohio Field Office Fernald Closure Project 175 Tri-County Parkway Springdale, Ohio 45246 THENT OF AND STATES OF AND STA

DOE-0165-06

JUL 1 3 2006

Mr. James A. Saric, Remedial Project Manager United States Environmental Protection Agency Region V-SRF-5J 77 West Jackson Boulevard Chicago, Illinois 60604-3590

Mr. Thomas Schneider, Project Manager Ohio Environmental Protection Agency Southwest District Office 401 East Fifth Street Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

TRANSMITTAL OF RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY RESPONSES TO COMMENTS ON THE ADDENDUM TO THE WASTE STORAGE AREA PHASE II DESIGN REPORT, REVISION A

Reference:

Letter, T. Schneider to J. Reising, "Comments on Responses to Comments on the Addendum to Waste Storage Area Phase II Design Report, Revision A," dated May 15, 2006

Enclosed for your review and approval are the subject responses.

If you have any questions concerning this report, please contact me at (513) 648-3139.

Sincerely,

Jøhnny W. Reising

Director

Enclosure: As Stated

Mr. James Saric

Mr. Thomas Schneider

cc w/enclosure:

Edward Skintik, DOE-OH

C. Jacobson, Stoller

M. Lutz, Stoller

J. Powell, DOE-LM/FCP

S. Marutzky, Stoller

M. Cullerton, Tetra Tech

M. Miller, Stoller

S. Helmer, ODH

G. Jablonowski, USEPA-V, 5HRE-8J

T. Schneider, OEPA-Dayton (3 copies of enclosure)

M. Shupe, HSI GeoTrans

T. Tucker, OEPA-Columbus

cc w/o enclosure:

R. Abitz, Fluor Fernald, Inc., MS88

K. Broberg, Fluor Fernald, Inc., MS12

J. Chiou, Fluor Fernald, Inc., MS88

B. Hertel, Fluor Fernald, Inc., MS12

F. Johnston, Fluor Fernald, Inc., MS12

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K. Voisard, Fluor Fernald, Inc., MS12

RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY RESPONSES TO COMMENTS ON THE ADDENDUM TO THE WASTE STORAGE AREA PHASE II DESIGN REPORT

FERNALD CLOSURE PROJECT FERNALD, OHIO

JULY 2006

U.S. DEPARTMENT OF ENERGY

RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY RESPONSES TO COMMENTS ON THE ADDENDUM TO THE WASTE STORAGE AREA PHASE II DESIGN REPORT

GENERAL COMMENTS:

Commenting Organization: Ohio EPA 1.

Commenter:

Section #:

Pg #:

Line #:

Code:

Original Comment #: 2

Comment:

DOE should specify the depth and lithology of the aquifer sample used in the kd determination from Extraction Well 33262. The lithology data from the Waste Pits area indicates that silty sand and clay lenses are more common in the upper GMA in this portion of the site relative to other areas. For example, Monitoring Well 2028 is logged as silty sand between 65 and 70 feet; 2010 is clay from 66.5 to 70 feet; 3034 is silty gravel from 56.5 to 60 feet. The kd for a chemical is a function of the properties of the chemical and the porous media. If the kd determined from EW-33262 is characteristic of the more permeable (low silt content) portion of the aquifer, it may not be applicable for cleanup of the silty sand and clay lenses in the Waste Storage Area. DOE should sensitivity of the model kd to lithologic variations in the area.

Response:

The aquifer sample from Extraction Well 33262 (EW-15a) that was used to determine a manganese Kd range of 0.4 L/kg to 1.3 L/kg, came from a depth interval of 52.75 feet bgs to 53.75 feet bgs (515.618 feet amsl to 514.618 feet amsl). The sample was olive-brown, fine sand, grading into coarse sand with some very fine gravel (SP/SW).

DOE acknowledges that silty sands and clay lenses in the former waste storage area could complicate cleanup of dissolved manganese in the aquifer. DOE has been very consistent in dealing with this uncertainty by modeling with the highest suitable Kd value when a range of values is available.

As reported in the Addendum to the Waste Storage area Phase II Design Report, modeling cleanup of the manganese plume at a Kd of 1.3 L/kg, indicates that below FRL concentrations for manganese will be achieved within a couple of years of the full system becoming operational. It will therefore be known very soon after the entire waste storage area module (all four extraction wells) becomes operational if the modeled cleanup time prediction for manganese presented in the addendum is realistic.

Uncertainty in remediation effectiveness in the Waste Storage Area will be addressed through monitoring. Manganese concentration data collected at existing monitoring wells will be supplemented by additional direct push sampling concentration data. Preliminary data will be reported to the EPAs as soon as it becomes available and annually in the Site Environmental Report.

Action:

No change to the design report required.

Commenting Organization: Ohio EPA 2.

Commenter:

Section #:

Pg #:

Line #:

Code:

Original Comment #: 3

Comment:

DOE should propose and conduct the necessary water quality and microbiological testing to verify that biofouling is occurring. Although the comparison of Geoprobe results to adjacent monitoring well results may imply the presence of biofouling, direct evidence is needed given the nearby presence of a known source of manganese contamination and the long term need for accurate interpretation of groundwater monitoring data at the site. Acceptance of the biofouling explanation requires substantiation of the occurrence of this phenomena beyond simple comparisons of Geoprobe data to a nearby monitoring well.

Response:

As explained in the previous response to this comment, both the manganese concentration and sample turbidity suggest that biofouling is occurring at Monitoring Well 2010. For example, the groundwater sample collected from Monitoring Well 2010 was extremely turbid and contained heavy black sediment. Monitoring for manganese will continue in the Waste Storage Area and additional testing will be considered (including microbiological testing) should manganese concentrations in the area not respond to the remedy as predicted.

Action:

No change to the design report required.

Commenting Organization: Ohio EPA 3.

Commenter:

Section #:

Pg #:

Line #:

Code:

General Comment #: 4

Comment:

Given that the waste pits are a known source of manganese contamination to the aquifer, they are the most likely source for the observed elevated manganese concentrations, even if lower concentrations are observed at shallower depth. The lithology data from the Waste Pits area indicates the more frequent presence of silty sand and clay lenses in the upper portion of the aquifer relative to other site areas. The currently observed contamination distribution may be influenced by aquifer lithology. If, at a sampling location, the shallow portion of the aquifer consists of higher permeability, poorly graded sand and gravel underlain by deeper silty sand lenses, it is very likely that shallower concentrations were historically higher but have declined through more efficient flushing of this interval relative to the deeper silty sand lenses. At the time the recent Geoprobe sampling occurred, therefore, the observed condition of lower concentration aquifer overlying higher concentration aquifer likely results from the greater sorptive capacity and lower permeability of this underlying, more poorly flushed zone. In addition, to better interpret the available data, DOE should provide information regarding which of the waste pits received manganese bearing wastes.

Response:

DOE has previously acknowledged that the waste pits are a possible source for the deep manganese contamination. Manganese was utilized in wet chemical operations in Plant 8. Filter cakes and treated effluent from Plant 8 were sent directly to Pits 2 and 3. DOE also acknowledges that the currently observed manganese contamination distribution may be influenced by aquifer lithology. Regardless of the cause of the deep manganese exceedances all of the deep manganese groundwater FRL exceedances are factored into the characterization and modeled cleanup of the manganese plume in the Waste Storage area.

Action:

No change to the design report required.

Commenting Organization: Ohio EPA

Pg #:

Line #:

Commenter:

Code:

General Comment #: 5

Comment:

Section #:

The comment response states the assumption that an additional extraction well will not reduce the estimated groundwater cleanup time for the Waste Storage Area uranium and manganese plumes. Given that the purpose of the model is to compare various remedial options, the model should be run to verify this assumption and to show what if any effect an additional well may have on the model-derived cleanup time estimate.

Response:

At a Technical Exchange Meeting (TIE) held on May 23, 2006 in Dayton Ohio, (U.S. EPA, Ohio EPA, and DOE all in attendance) an agreement was reached to model cleanup in the Waste Storage Area using two extraction wells. Results were provided with the RTC for the LMICP.

Action:

As stated in the response.